IN THE CLAIMS

No claims are amended. The claims as they currently stand in the application, after the response filed on June 19, 2007, are as follows:

1. (PREVIOUSLY PRESENTED) An apparatus for adding auxiliary data D_A to an output data stream, comprising:

a statistical multiplexer having a plurality of inputs including a first input, and an output providing the output data stream;

a first encoder, having an output communicatively coupled to the a first statistical multiplexer input, the first encoder for compressing a first data stream D_1 according to a first actual data rate BW_{A_1} that is less than or equal to a first granted data rate BW_{G_1} granted by the statistical multiplexer in response to a requested data rate BW_{R_1} from the encoder, the difference between the first actual data rate BW_{A_1} and the first granted data rate BW_{G_1} defining an encoder overhead rate BW_{OE1} such that $BW_{G_1} - BW_{A_1} = BW_{OE_1} \geq 0$, the first encoder having an output including a compressed version of the first data stream d_1 provided at the actual data rate BW_{A_1} and encoder null data N_{E_1} at the overhead rate BW_{OE1}; and

an auxiliary multiplexer, communicatively coupled to the statistical multiplexer, for sensing encoder null data N_E and for substituting at least a portion of the auxiliary data D_A for the encoder null data N_E.

2. (CANCELED)

3. (ORIGINAL) The apparatus of claim 1, wherein the auxiliary multiplexer is communicatively coupled to the output of the statistical multiplexer.

4. (ORIGINAL) The apparatus of claim 3, further comprising a buffer, communicatively coupled to the auxiliary multiplexer, the buffer for buffering the auxiliary data.

5. (ORIGINAL) The apparatus of claim 4, wherein the auxiliary multiplexer substitutes the auxiliary data according to an unused memory of the buffer.

6. (ORIGINAL) The apparatus of claim 3, wherein the auxiliary multiplexer further senses statistical multiplexer null data N_{SM} and substitutes at least a portion of the auxiliary data for the multiplexer null data N_{SM}.

7. (PREVIOUSLY PRESENTED) The apparatus of claim 3, wherein:

the statistical multiplexer manages the the first encoder output according to a first command input describing a target data rate of the output data stream B_T; and

the auxiliary multiplexer is communicatively coupled to the statistical multiplexer first input to command a change the target data rate of the output data stream B_T.

8. (ORIGINAL) The apparatus of claim 7, further comprising a buffer, communicatively coupled to the auxiliary multiplexer, the buffer for buffering the auxiliary data, wherein the auxiliary multiplexer changes the target data rate according to an unused memory of the buffer.

9. (ORIGINAL) The apparatus of claim 7, wherein the auxiliary multiplexer changes the target data rate according to one or more auxiliary data parameters selected from the group comprising:

a minimum auxiliary data rate BW_{MIN};

a maximum auxiliary data rate BW_{MAX};

a nominal auxiliary data rate BW_{AVG} measured over a time period t_{per}; and

a priority.

10. (PREVIOUSLY PRESENTED) The apparatus of claim 7, wherein the change in the target data rate of the output data is commanded to decrease the target rate of the output data stream B_T to permit the substitution of auxiliary data D_A for the multiplexer null data N_{SM}.

11. (PREVIOUSLY PRESENTED) The apparatus of claim 7, wherein:

the auxiliary multiplexer further senses statistical multiplexer null data N_{SM} and substitutes at least a portion of the auxiliary data for the multiplexer null data N_{SM}; and

the change in the target data rate of the output data is commanded to decrease the target rate of the output data stream B_T to permit the substitution of auxiliary data D_A for data selected from the group comprising the encoder null data N_{E_1} and the multiplexer null data N_{SM}.

12. (PREVIOUSLY PRESENTED) The apparatus of claim 11, wherein the auxiliary data is added at a pre-specified minimum auxiliary data rate.

13. (PREVIOUSLY PRESENTED) The apparatus of claim 3, further comprising:

a second encoder, having an output communicatively coupled to a first statistical multiplexer input, the second encoder for compressing a second data stream D_2 according to a second actual data rate BW_{A2} that is less than or equal to a second granted data rate BW_{G2} granted by the statistical multiplexer in response to a requested data rate BW_{R_2} from the second encoder, the difference between the second actual data rate BW_{A2} and the first granted data rate BW_{G_2} defining an encoder overhead rate BW_{OE2} such that $BW_{G_1} - BW_{A_1} = BW_{OE2} \geq 0$, the ~~first~~ second encoder having an output including an compressed version of the ~~first~~ second data stream provided at the actual data rate BW_{A2} and encoder null data N_{E2} at the overhead rate BW_{OE2}, the second encoder having an output;

wherein the statistical multiplexer allocates data presented at the plurality of inputs to the statistical multiplexer output according to a statistical multiplexer second command input; and

wherein the auxiliary multiplexer is communicatively coupled to the statistical multiplexer second input to command a change in the allocation of the data presented at the plurality of inputs to the statistical multiplexer output.

14. (PREVIOUSLY PRESENTED) The apparatus of claim 13, wherein the auxiliary multiplexer changes the allocation of the data presented at the plurality of inputs to the statistical multiplexer output according to an unused memory of a buffer communicatively coupled to the auxiliary multiplexer, the buffer for buffering the auxiliary data.

15. (PREVIOUSLY PRESENTED) The apparatus of claim 14, wherein the multiplexer changes the allocation of the data presented at the plurality of inputs to the statistical multiplexer output according to an unused memory of the buffer.

16. (PREVIOUSLY PRESENTED) A method of adding auxiliary data D_A to a data stream, comprising the steps of:

accepting a statistically multiplexed data stream having null data;

substituting at least a portion of the auxiliary data D_A for the null data in the statistically multiplexed data stream; and

prior to the substitution of the at least a portion of the auxiliary data D_A for the null data in the statistically multiplexed data stream, controlling an amount of the null data in the statistically multiplexed data stream to provide sufficient null data to permit the substitution of at least some of the auxiliary data D_A in the statistically multiplexed data stream.

17. (PREVIOUSLY PRESENTED) The method of claim 16, wherein the auxiliary data D_A is non-opportunistic data.

18. (PREVIOUSLY PRESENTED) The method of claim 16, further comprising the step of:

buffering the auxiliary data D_A until there is sufficient null data to permit the substitution of the at least some of the auxiliary data D_A in the statistically multiplexed data stream.

19. (CANCELED)

20. (PREVIOUSLY PRESENTED) The method of claim 18, wherein the amount of null data is controlled according to a relationship between an amount of the buffered auxiliary data D_A and a capacity of a buffer storing the buffered data.

21. (PREVIOUSLY PRESENTED) The method of claim 16, wherein the null data comprises statistical multiplexer null data N_{SM}.

22. (PREVIOUSLY PRESENTED) The method of claim 21, wherein the statistically multiplexed data stream is statistically multiplexed to a throughput less than or equal to a target throughput value BW_T, and the step of controlling an amount of null data in the statistically multiplexed data stream comprises the step of altering the target throughput value BW_T.

23. (PREVIOUSLY PRESENTED) The method of claim 16, wherein the null data comprises encoder null data N_E.

24. (PREVIOUSLY PRESENTED) The method of claim 23, wherein the statistically multiplexed data stream is statistically multiplexed according to a statistical multiplexer equation, and the step of controlling an amount of null data in the statistically multiplexed data stream comprises the step of altering the statistical multiplexer equation.

25. (PREVIOUSLY PRESENTED) The method of claim 16, further comprising the step of:

examining the auxiliary data D_A for non-essential data; and

eliminating the non-essential data from the auxiliary data D_A before substituting the auxiliary data D_A for the null data in the statistically multiplexed data stream.

26. (PREVIOUSLY PRESENTED) The method of claim 16, wherein the amount of null data in the statistically multiplexed data stream is controlled according to a parameter set describing the auxiliary data D_A, including:

a minimum throughput required to keep the data service active BW_{MIN};

a maximum sustained throughput of the data service BW_{MAX}; and

a nominal or guaranteed rate over a time period BW_{AVG}.

27. (PREVIOUSLY PRESENTED) The method of claim 16, wherein the data stream comprises a set of data packets all having a packet ID including a first data packet and a second data packet temporally adjacent the first data packet, and the step of substituting at least a portion of the auxiliary data D_A for the null data in the statistically multiplexed data stream comprises the steps of:

substituting at least a portion of the auxiliary data D_A for the data in the second data packet if the first data packet includes at least a number NB consecutive zero data values and the second data packet includes all zero data values.

28. (PREVIOUSLY PRESENTED) A system for transmitting auxiliary data D_A packetized satellite signal, comprising:

a statistical multiplexer having a plurality of inputs including a first input, and an output providing an output data stream;

a first encoder, having an output communicatively coupled to the a first statistical multiplexer input, the first encoder for compressing a first data stream D_1 according to a first actual data rate BW_{A_1} that is less than or equal to a first granted data rate BW_{G_1} granted by the statistical multiplexer in response to a requested data rate BW_{R_1} from the encoder, the difference between the first actual data rate BW_{A_1} and the first granted data rate BW_{G_1} defining an encoder overhead rate BW_{OE1} such that $BW_{G_1} - BW_{A_1} = BW_{OE_1} \geq 0$, the first encoder having an output including an compressed version of the first data stream d_1 provided at the actual data rate BW_{A_1} and encoder null data N_{E_1} at the overhead rate BW_{OE}; and

an auxiliary multiplexer, communicatively coupled to the statistical multiplexer, for sensing encoder null data N_E and for substituting at least a portion of the auxiliary data D_A for the encoder null data N_E;

a modulator communicatively coupled to the auxiliary multiplexer, for modulating the output data stream;

a transmitter, communicatively coupled to the modulator for transmitting the output data stream; and

a transponder, for receiving the transmitted modulated output data stream and for retransmitting the received output data stream to a subscriber.

29. (CANCELED)

30. (CANCELED)

31. (PREVIOUSLY PRESENTED) The apparatus of claim 1, wherein the auxiliary multiplexer is communicatively coupled to the output of the encoder and the input of the statistical multiplexer to sense the encoder null data N_E.

32. (PREVIOUSLY PRESENTED) The system of claim 28, wherein the auxiliary multiplexer is communicatively coupled to the output of the encoder and the input of the statistical multiplexer to sense the encoder null data.